CLAIMS

What is claimed is:

1) The method of fabricating a fibrous member comprising the steps of:
   a) providing a mixture, said mixture comprising a plurality of fibers, a lubricant, and a suspension fluid, said suspension fluid filling a void space between said fibers;
   b) subjecting said mixture to at least one compressive force, said compressive force causing the migration and at least partial alignment of said fibers; and
   c) removing substantially all of said suspension fluid from said mixture.
2) The method of claim 1, wherein said mixture further comprises a biologically active agent.
3) The method of claim 1, wherein said mixture further comprises a reinforcing agent.
4) The method of claim 2, wherein said mixture further comprises a reinforcing agent.
5) The method of claim 1, wherein said removing of said suspension fluid comprises wicking away suspension fluid that is on an exterior surface of said fibrous member.
6) The method of claim 2, wherein said wicking away of suspension fluid involves compressing said mixtures against at least one wicking element
7) The method of claim 1, wherein said compressive forces reduce said void space between said fibers.
8) The method of claim 1, wherein said lubricant is in the form of a liquid.
9) The method of claim 1, wherein said lubricant is in the form of a solid.
10) The method of claim 9, wherein said solid lubricant is further provided in a carrier fluid.
11) The method of claim 1, wherein said compressive force induces flow of the suspension fluid.
12) The method of claim 11, wherein said suspension fluid flow causes plates of oriented fibers to be formed.
13) The method of claim 1, wherein said compressive force is applied by a molding surface, thereby creating a shaped fibrous member in said mold.
14) The method of claim 13, wherein said shaped fibrous member is in the shape selected

from the group comprising a sheet, cylinder, block, sphere, tube, and a valve.

15) The method of claim 1, further comprising the step of:

d) machining said compressed mixture.

16) The method of claim 1, further comprising the step of:

d) cross-linking at least a portion of said compressed mixture by exposure to a cross-linking agent.

17) The method of claim 16, further comprising the step of:

e) machining said compressed mixture.

18) The method of claim 1, further comprising the step of:

d) drying said compressed mixture.

19) The method of claim 18 further comprising the step of:

e) cross-linking at least a portion of said dried, compressed mixture by exposure to a cross-linking agent.

20) The method of claim 19 further comprising the step of:

f) machining said compressed mixture.

21) The method of fabricating a fibrous member comprising the steps of:

a) providing a mixture, said mixture comprising a plurality of fibers, a lubricant and a suspension fluid, said suspension fluid filling a void space between said fibers;

b) subjecting said mixture to at least one compressive force, said compressive force causing the migration and at least partial alignment of said fibers;

c) cross-linking at least a portion of said mixture;

d) subjecting said at least partially cross-linked mixture to a second compressive force; and

e) removing substantially all of said suspension fluid from said mixture.

22) An implantable device comprising polymer fibers originally having void spaces therebetween, wherein said fibers have been compressed while in contact with a lubricant, said lubricant serving to reduce said void space by facilitating migration and alignment of said polymer fibers.

23) The implantable device of claim 22 further comprising at least one reinforcing element.

24) The implantable device of claim 23, wherein said at least one reinforcing element is selected from the group consisting of particulates, threads, fibers, whiskers, textiles, rods, meshes, and combinations thereof.

25) The implantable device of claim 22 further comprising at least one biologically active agent.

26) The implantable device of claim 23 further comprising at least one biologically active agent.

27) The implantable device of 22 wherein said polymer fibers said alignment of said fibers creates plates of oriented fibers.

28) The implantable device of 27 wherein said plates of oriented fibers do not traverse the length of said device, said plates of oriented fibers being nested in a compact orientation and divided by a plurality of random multiple fissures.

29) The implantable device of 22 wherein said device has an anisotropic structure.

30) The implantable device of 22 wherein said device has an isotropic structure in two dimensions.

31) An implantable device comprising polymer fibers originally having void spaces therebetween, wherein said fibers have been compressed while in contact with a lubricant, said lubricant serving to reduce said void space by enabling migration and alignment of said polymer fibers, and where said polymer fibers have been at least partially cross-linked on the periphery of the implantable device, leaving non-cross-linked fibers away from the periphery.

32) The implantable device of claim 31 wherein a pocket has been formed inside the cross-linked fiber periphery by causing the separation of the fibers away from the periphery, such that a substance may be delivered within said pocket.

33) The implantable device of claim 32 wherein said substance within said pocket is selected from the group consisting of ceramics, polymers, cells, biologically active agents, liquids and combinations thereof.

34) An implantable device comprising polymer fibers originally having void spaces therebetween, wherein said fibers have been compressed while in contact with a

lubricant, said lubricant serving to reduce said void space by facilitating migration and alignment of said polymer fibers, wherein said compression is oriented towards a second implantable device, thereby said polymer fibers form a coating on said second implantable device.

35) The implantable device of claim 34, wherein the fibers are coated onto said second implantable device, said second implantable device being an interference screw.

36) The implantable device of claim 22, wherein the device is arranged to swell upon implantation and exposure to a bodily fluid thereby functioning as a hemostatic tract plug.

37) The implantable device of claim 22, wherein said implantable device is arranged to accept a suture and resist tearing.

38) The implantable device of claim 22, wherein said implantable device serves a medical device function, said function selected from the group consisting of dura repair, hernia repair, rotator cuff repair, nerve repair, ligament repair, tendon repair, meniscal repair, muscle repair, sling, joint repair, spinal repair, craniofacial repair, and maxiofacial repair.

39) An implantable device comprising multiple layers of polymer fibers originally having void spaces therebetween, wherein said multiple layers of polymer fibers have been compressed while in contact with a lubricant, said lubricant serving to reduce said void space by facilitating migration and alignment of said multiple layers of polymer fibers, wherein upon compression said layers of polymer fibers create a laminate structure.

40) The implantable device of claim 39, wherein the multiple layers of polymer fibers are composed of different polymers.

41) The implantable device of claim 39, wherein the multiple layers of polymer fibers form a gradient.

42) A compressed fibrous matrix wherein said matrix comprises multiple plates of oriented fibers, with said plates being formed by said compression.

43) The matrix of claim 42 wherein said plates are oriented.

44) The matrix of claim 42 wherein said plates are aligned.

45) The matrix of claim 42 wherein said plates are randomly oriented.

46) The matrix of claim 42 wherein the orientation of fibers within each plate is independent

of the orientation of fibers within adjacent plates.

47) The matrix of claim 42 wherein the fibers are composed of at least two different polymers.

48) The matrix of claim 42 wherein the fibers are contacted with a lubricant prior to said compression.

49) The matrix of claim 42 wherein the fibers are contacted with a plasticizer.

50) The matrix of claim 42 wherein the fibers are contacted with a surfactant.

51) The matrix of claim 42 wherein the fibrous plates are randomly oriented.

52) The matrix of claim 42 wherein the plates form microscopic laminations.

53) The matrix of claim 42 wherein the matrix is cross-linked.

54) The matrix of claim 42 wherein only the outer surface of the fibrous matrix is cross-linked leaving the interior substantially un-cross-linked.

55) The matrix of claim 42 in the form of a pocket.

56) The matrix of claim 42 in the form of a tube.

57) The matrix of claim 42 wherein the fibrous matrix is compressed into a sheet.

58) The matrix of claim 42 wherein the fibrous matrix is compressed into a cylinder.

59) The matrix of claim 42 wherein the fibrous matrix is compressed into a block.

60) The matrix of claim 42 wherein the plates of the fibrous matrix create a gradient.

61) The matrix of claim 42 further containing a reinforcing material.

62) The matrix of claim 42 wherein the plates form a coating around an object.

63) The matrix of claim 42 further containing a biologically active agent.

64) The matrix of claim 42 further containing a microstructure.

65) The matrix of claim 42 further containing a particulate.

66) A prosthesis suitable for implantation in a living being, comprising a compact, anisotropic structure comprising a plurality of layers or plate-like members locked to one another, the layers or plate-like members comprising aligned, biodegradeable fibers.

67) The prosthesis of claim 66, wherein said structure is isotropic in two dimensions.

68) The prosthesis of claim 66, wherein said layers or plate-like members extend substantially completely through said structure.

69) The prosthesis of claim 66, wherein said layers or plate-like members do not extend completely through said structure, but rather exist as multiple fissures located randomly throughout said structure.

70) The prosthesis of claim 66, wherein said structure further comprises at least one lubricant.

71) The prosthesis of claim 66, wherein said structure further comprises an inter fiber void space defined by a space between said fibers.

72) The prosthesis of claim 66, wherein said structure further comprises at least one additive.

73) The prosthesis of claim 72, wherein said additive comprises at least one substance selected from the group consisting of a surfactant, a plasticizer, particulate, a porosifier and a mesh.